

Serial No.: To Be Assigned
Group Art Unit No.: Unknown

- vii) phobia;
- viii) dyskinesias;
- ix) Parkinson's Disease;
- x) Huntington's chorea;
- xi) cerebral palsy;
- xii) incontinence;
- xiii) erectile dysfunction; and
- xiv) alopecia,

by administration of an effective amount of a compound selected from the group consisting of:

- a) an h-TREK polypeptide;
- b) a compound that activates an h-TREK polypeptide;
- c) a compound that inhibits an h-TREK polypeptide;
- d) a polynucleotide encoding an h-TREK polypeptide to a patient in need thereof.

- 15. A method according to claim 14 wherein the condition is epilepsy.
- 16. A method according to claim 14 wherein the condition is a sleep-related disorder.
- 17. A method according to claim 16. wherein the compound is used to enhance the induction of sleep.
- 18. A method according to claim 14 wherein the compound is used to enhance cognition or cognitive dysfunction.
- 19. A method according to claim 14 wherein the condition is a dyskinesia, Parkinson's Disease, or Huntington's chorea.
- 20. A method according to claim 14 wherein the compound is an isolated polypeptide which comprises a polypeptide having at least 95% identity to the h-TREK1 polypeptide of SEQ ID No. 2.
- 21. A method according to claim 20 wherein the isolated polypeptide is the h-TREK1 polypeptide of SEQ ID No. 2.
- 22. A method according to claim 14 wherein the compound is a compound that inhibits the activity of an h-TREK1 polypeptide.
- 23. A method according to claim 14 wherein the compound is a compound that activates an h-TREK1 polypeptide.
- 24. A method according to claim 14 wherein the compound comprises an isolated polynucleotide encoding a polypeptide having at least 95% identity to the amino acid sequence of SEQ ID No. 2.

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25. A method according to claim 24 wherein the isolated polynucleotide comprises a polynucleotide having at least 95% identity to the polynucleotide of SEQ ID No. 1.
26. A method according to claim 25 wherein the polynucleotide has the sequence of SEQ ID No. 1.
27. A method of screening to identify a compound useful in the treatment of a condition selected from the group consisting of:
 - xv) epilepsy;
 - xvi) sleep-related disorders;
 - xvii) cognitive dysfunction;
 - xviii) attention deficit disorder;
 - xix) addiction;
 - xx) anxiety;
 - xxi) phobia;
 - xxii) dyskinesias;
 - xxiii) Parkinson's Disease;
 - xxiv) Huntington's chorea;
 - xxv) cerebral palsy;
 - xxvi) incontinence;
 - xxvii) erectile dysfunction; and
 - xxviii) alopecia,comprising contacting one or more candidate compounds with an h-TREK polypeptide, *in vivo* or *in vitro*.
28. A method according to claim 27 further comprising measuring the binding of a candidate compound to an h-TREK polypeptide.
29. A method according to claim 27 further comprising detection of a signal generated by activation or inactivation of the h-TREK polypeptide.